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Application No.: 09/530,629
Examiner: Guillermo Perez

**37 CFR §1.121(b)(1)(iii) and (c)(1)(ii) SPECIFICATION
AND CLAIM AMENDMENTS- MARKED UP VERSION**

IN THE SPECIFICATION

Turning now to Figures 4a to 4f, these Figures show the varying relationship between the cylindrical surfaces of the pole pieces 2 and the segments 8, 9 in planar form (i.e. unwrapped). As illustrated in Figures 4a to 4f, the helical components of both the rotor and stator have a common general angular orientation since both are angled in the same general direction from the axis, i.e. both are clockwise or counter clockwise helices. In Figure 4a the rotor 7 is in approximately its mid position with each outer pole piece 2 having two segment halves 8, 9, one north and one south, adjacent it. With no current flowing through the coils 5, 6 the outer pole pieces 2 become alternate north and south poles, as is shown in Figure 4b. The rotor 7 therefore tries to align itself with the magnetisation of the pole pieces 2 and with no constraints, the helical geometry of the segments of the rotor 7 would enable alignment by both axial and rotational movement. However, as mentioned earlier rotational movement of the rotor is prevented, therefore the rotor 7 moves axially until the poles of the segments 8, 9 are appropriately aligned with the opposing magnetisation of the pole pieces 2 as shown in Figure 4c. If an alternating current is applied to the coils 5, 6 so that the

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magnetisation of the pole pieces 2 varies with time an alternating axial force/motion is achieved. Figures 4d to 4f shown the motion of the rotor 7 in response to an opposite force.

IN THE CLAIMS

1. (Amended Four Times) An electromechanical transducer comprising:
a stator having a plurality of coils; and
a magnetic assembly having a plurality of magnetic poles there being flux linkage between the coils and the magnetic poles[, defining a magnetic circuit for imparting relative linear movement between the stator and the magnetic assembly,];

wherein the stator and the magnetic assembly are arranged for relative linear movement [such that relative rotational movement is constrained] and [at least one of] both the plurality of coils and [at least one of] the plurality of magnetic poles are arranged to describe a helical path about the axis of the transducer such that [whereby] the magnetic circuit includes a helical component which induces either a force as a result of changes in the flux linkage or changes in the flux linkage as a result of relative linear movement.

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6. (Amended) The electromechanical transducer as claimed in claim [5]1, wherein the angle of the helical path of the plurality of coils is different to the angle of the plurality of magnetic poles of the magnetic assembly.

11. (Amended) The electromechanical transducer as claimed in claim 1, wherein at least one of the stator, the magnetic assembly and the magnetic circuit member consists of a plurality of laminations stacked together and the planes of the individual laminations describe a helical path about the axis of the transducer.